

Tuesday, 4/17/2007 11:05:49 AM  
 Kim Johnston

## Process Sheet

Item Number	: CU-DAR001 Dart Helicopters Services	Drawing Name	: LITTER ASSEMBLY
Part Number	: 31839	Part Number	: D2370
Material Number	: 10301	Drawing Number	: D2370 REV C
Issue Number	: N/A	Project Number	: N/A
Issue Date	: 4/17/2007	Drawing Revision	: C
Issue Reason	: NC	Material	: N/A
First Issue	: N/A	Due Date	: 4/30/2007
Previous Run	: 30234	Qty:	2 Um: Each
Written By	: <u>[Signature]</u>		
Checked & Approved By	: <u>[Signature]</u>		
Comment	: Est D 01.10.10 Changed D2484 nut for D3015-1 SM est E 06.12.12 ecn 888 ec		

## Additional Product

Job Number:



Seq. #: Machine Or Operation: Description:

1.0 PG PURCHASING



Comment: PURCHASING

Issue p/o: 3573

C207104/18 ②

Order: Model 12-2A undrilled with grey pad &amp; black belts

Supplier: Ferno Aviation

Letter of compliance required

2.0 D2370P Litter Assembly



Comment: Qty.: 1.0000 Each(s)/Unit Total: 2.0000 Each(s)  
 Litter Assembly

3.0 PACKAGING 1 PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive and inspect for transit damage

Insure that letter of compliance is attached to w/o

C207104/20 ②

4.0 QC6 DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

5.0 D2374 Stud



Comment: Qty.: 4.0000 Each(s)/Unit Total: 8.0000 Each(s)

Stud

Pick:

Qty Part Number

Description

Batch

4

D2374

Stud

B29137 X8

m207104/24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes ☒ No ☐ DQA: FD Date: 07/04/25  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
07/04/24	S	1 piece D2374 was damage <del>to</del> the is	<i>[Signature]</i> 05/04	Strip + destroy Replace.	SB 07/04/24	<i>[Signature]</i> 07/04/24	<i>[Signature]</i> 05/04	<i>[Signature]</i> 07/04/24

NOTE: Date & initial all entries

Date: Tuesday, 4/17/2007 11:05:49 AM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: LITTER ASSEMBLY

Job Number: 31839

Part Number: D2370

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

D2378

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 8.0000 Each(s)

Bolt

Pick:

Qty

Part Number

Description

Batch

4

D2378

Mounting Bolt

B31885 x4  
B29444 x4 ✓

7.0

D30151

Lock Nut



Comment: Qty.: 4.0000 Each(s)/Unit Total : 8.0000 Each(s)

Lock Nut

Pick:

Qty

Part Number

Description

Batch

4

D3015-1

Lock Nut

B14710 x8 ✓

8.0

AN960JD416L

Washer



Comment: Qty.: 4.0000 Each(s)/Unit Total : 8.0000 Each(s)

Washer

Pick:

Qty Part Number

Description

Batch

4

AN960JD416L

Washer

M102929 x8 ✓

9.0

MS27039406

Screw



Comment: Qty.: 2.0000 Each(s)/Unit Total : 4.0000 Each(s)

Screw

Batch:

M15194

10.0

SMALL FAB 1

SMALL & MEDIUM FAB RESOURCE 1



Comment: SMALL & MEDIUM FAB RESOURCE 1

1-Assemble as per Dwg D2370

2-Drill 0.191" holes as per Dwg D2370

3-Replace lose rivets with screw per dwg D2370

Apply locktite

3-Deburr

M07/04/24

x2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 4/17/2007 11:05:49 AM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: LITTER ASSEMBLY

Job Number: 31839

Part Number: D2370

Job Number:



Seq. #:

Machine Or Operation:

Description :

11.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

SB 07/04/24 (2)

12.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: \_\_\_\_\_

P 1/4/25 (2)

13.0

QC21

FINAL INSPECTION W/O RELEASE



Comment: FINAL INSPECTION W/O RELEASE

2  
07/04/25

Job Completion



U 07/04/25

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

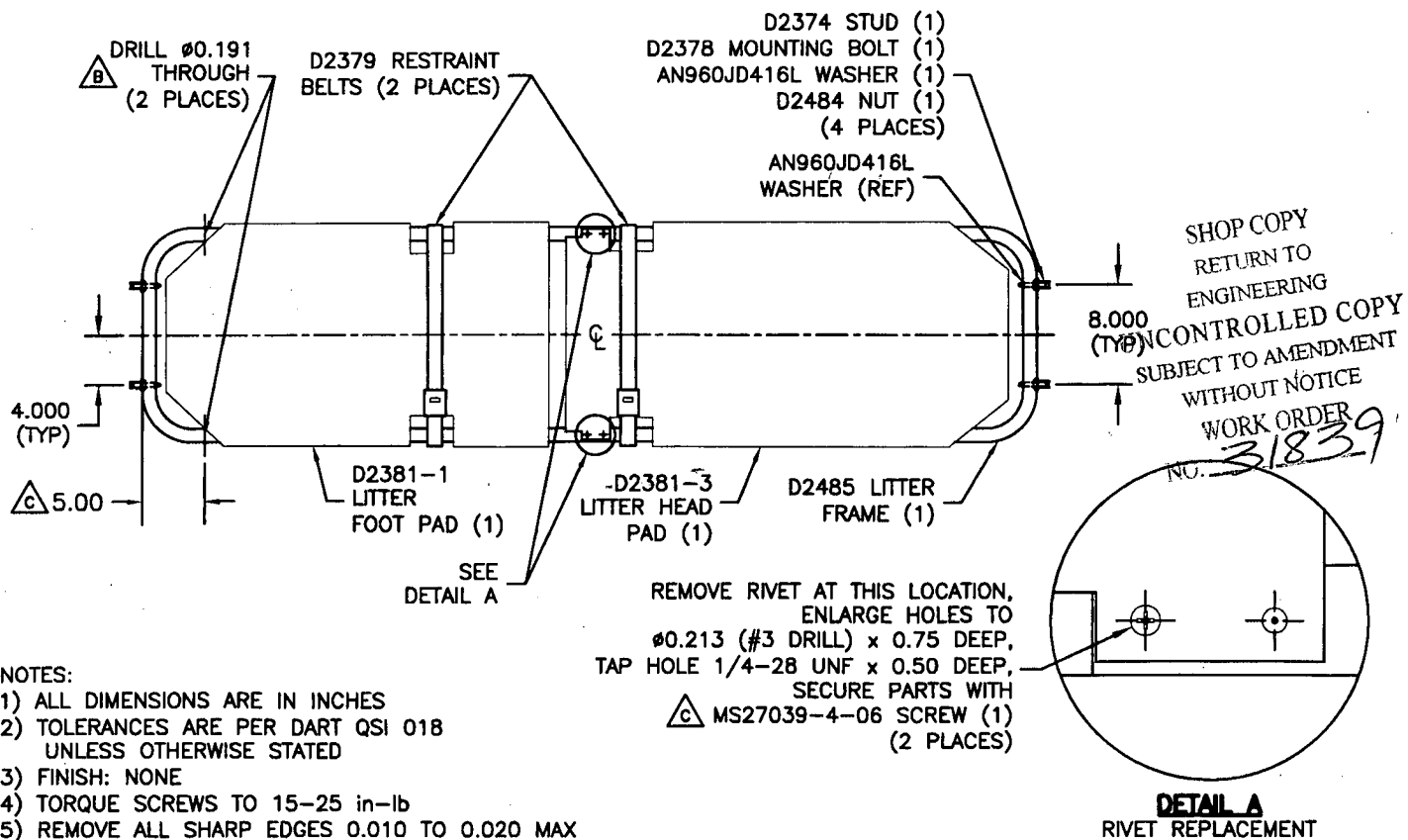
NOTE: Date & initial all entries

**DART**

DESIGN <b>KE</b>	DRAWN BY <i>[Signature]</i>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
CHECKED <b>PH</b>	APPROVED <i>[Signature]</i>	DRAWING NO. D2370	REV. C SHEET 1 OF 1
DATE 06.11.21		TITLE LITTER ASSEMBLY	SCALE NTS
A	95.02.20	NEW ISSUE	
B	98.06.09	ADDED Ø0.191 HOLES	
C	06.11.21	ADD ALTERNATE FOR D2484, MS SCREWS, TAPPED HOLES, AND 5.00 WAS 5.34	

**RELEASED**06 12.05 *[Signature]*

D2370	Part No.	Description
X	D2370	LITTER ASSEMBLY
4	D2374	STUD
4	D2378	MOUNTING BOLT
2	D2379	RESTRAINT BELTS
1	D2381-1	LITTER PAD
1	D2381-3	LITTER PAD
4	D2484	NUT (OR D3015-1) /C
1	D2485	LITTER FRAME
4	AN960JD416L	WASHER
2	MS27039-4-06	SCREW /C

**NOTES:**

- 1) ALL DIMENSIONS ARE IN INCHES
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE STATED
- 3) FINISH: NONE
- 4) TORQUE SCREWS TO 15-25 in-lb
- 5) REMOVE ALL SHARP EDGES 0.010 TO 0.020 MAX

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# **FERNO** Aviation, INC.

735-B Branch Drive  
Alpharetta, GA 30004  
Office 770.521.1005 Fax 770.521.0910  
<http://aviation.ferno.com>

## Packing Slip

DATE	PACKING SLIP NO.
4/18/2007	6726

BILL TO
Dart Aerospace, Ltd. 1270 Aberdeen Street Hawkesbury, ON K6A 1K7 Canada Attn: Accounts Payable

SHIP TO
Dart Aerospace, Ltd. 1270 Aberdeen Street Hawkesbury, ON K6A 1K7 Canada Ref: PO00003573

P.O. NUMBER	TERMS	REP	SHIP DATE	SHIP VIA	FOB
PO00003573	Net 30	CW	4/18/2007	Federal Express	Alpharetta,GA
ITEM	DESCRIPTION			QTY ORD.	QTY DEL.
12-2A (DART)	12-2A Litter Assembly W/Gray FAA Approved cover/pad assy. and Black FAA approved patient restraints S/N: 06-030928, 06-030931 (HS Code 8803.30.00.00)			2	2
Notes: 1. Ship FedEx on Acct # 1517-9324-0					

*[Handwritten signature]*  
*[Handwritten date: 4/18/07]*

Thank you for your order!





70 Weil Way ! Wilmington, OH 45177-9371 ! (937) 382-1451 ! FAX (937) 382-1191

Int'l FAX (937) 382-6569

Visit us at our web site: [www.ferno.com](http://www.ferno.com)

15<sup>th</sup> December 2006

### Certificate of Conformance

Manufacturer: Ferno-Washington Inc.

Manufacture Address: 70 Weil Way  
Wilmington, Ohio USA

Model: 12-2 Stretcher Gray

Serial Numbers: 06-030927; 06-030928; 06-030929; 06-030930; 06-030931

I certify that the above referenced products are produced in accordance with applicable Ferno-Washington Inc. engineering standards using approved manufacturing methods and materials. The products have been inspected using approved test procedures and inspection criteria for Ferno-Washington medical devices.

Ferno-Washington Inc. is a registered manufacturer (Registration No. 1523574) with the United States Food and Drug Administration (FDA) as a manufacturer of medical devices, and the Quality Management System has been verified by the FDA to be in compliance to FDA's Code of Federal Regulations 21 Part 820.

Thomas E. Livingston  
Director of Quality

# thank you!

Thank you for purchasing your new Ferno product. Please take a moment to carefully inspect your product.

We are committed to providing you with the best customer experience. Please fill out and return the registration card below to ensure the best service and support. You may also register at **register.ferno.com**

Retain this upper portion for your records.

## contact

Ferno Customer Service	<b>877-733-0911</b>
Ferno Technical Support	<b>866-987-3776</b>
International Customers	<b>937-382-1451</b>
Hydrotherapy Service & Support	<b>888-206-7802</b>

Ferno-Washington, Inc.  
70 Weil Way  
Wilmington, Ohio 45177

**www.ferno.com**

## for your records

Product Name \_\_\_\_\_  
Model \_\_\_\_\_  
Serial Number \_\_\_\_\_

## product registration

**register.ferno.com**

information in **BOLD** is required

**Name** \_\_\_\_\_  
Title \_\_\_\_\_  
**Company** \_\_\_\_\_  
Telephone \_\_\_\_\_  
**Street** \_\_\_\_\_  
**City** \_\_\_\_\_  
Province \_\_\_\_\_  
State \_\_\_\_\_  
**Postal/Zip Code** \_\_\_\_\_  
Country \_\_\_\_\_  
Email Address \_\_\_\_\_

Product Name \_\_\_\_\_  
**Model Number** \_\_\_\_\_  
**Serial Number** \_\_\_\_\_

Dealer Name \_\_\_\_\_  
Dealer State/Country \_\_\_\_\_  
Delivery Date \_\_\_\_\_  
Purchase Price \_\_\_\_\_

Was the product in good condition when it arrived? Yes No  
*if no, explain*

Did the product function properly when it arrived? Yes No  
*if no, explain*

Did you receive training on how to properly use and operate the product? Yes No  
*if no, explain*

Would you like more information on Ferno products? Yes No

Name: \_\_\_\_\_  
Company/Facility: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_



NO POSTAGE  
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IN THE  
UNITED STATES

**BUSINESS REPLY MAIL**

FIRST-CLASS MAIL PERMIT NO. 3 WILMINGTON OH

POSTAGE WILL BE PAID BY THE ADDRESSEE

FERNO WASHINGTON  
70 WEIL WAY  
WILMINGTON OH 45177-9988



Disclaimer

This manual contains general instructions for the use, operation and care of this product. The instructions are not all-inclusive. Safe and proper use of this product is solely at the discretion of the user. Safety information is included as a service to the user. All other safety measures taken by the user should be within and under consideration of applicable regulations. It is recommended that training on the proper use of this product be provided before using this product in an actual situation.

Retain this manual for future reference. Include it with the product in the event of transfer to new users. Additional free copies are available upon request from Customer Service.

Proprietary Notice

The information disclosed in this manual is the property of Ferno-Washington, Inc., Wilmington, Ohio, USA. Ferno-Washington, Inc., reserves all patent rights, proprietary design rights, manufacturing rights, reproduction use rights, and sales use rights thereto, and to any article disclosed therein except to the extent those rights are expressly granted to others or where not applicable to vendor proprietary parts.

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SECTION 1 - SAFETY INFORMATION

1.1 Safety Alerts

Safety alerts identify hazards to avoid. The following safety alerts appear in this manual.

**⚠ WARNING**

**Improper use can cause injury. Use the litter only as described in this manual.**

**Follow all safety precautions relevant to the type specification for the aircraft.**

**Improper maintenance can cause injury. Maintain the litter only as described in this manual.**

**Improper parts and service can cause injury. Use only Ferno parts and Ferno-approved service on the litter.**

1.2 Important Boxes

Important boxes are used in this manual to highlight and emphasize information relating to the text immediately preceding the box.

**Important**

1.3 Labels

Replace worn or damaged labels immediately. New labels are available from Ferno Customer Service (page 10).

1.4 Before You Begin

Follow the instructions in *Inspecting the Air Litter* (page 9) before placing the litter in service.

SECTION 2 - LEARNING ABOUT THE LITTER

2.1 Litter Description

The Model 12-2 Air Litter (litter) is a patient handling device designed to provide support for a patient during transport in an aircraft.

The litter is for professional use by a minimum of four trained operators.

The litter features include an adjustable backrest, loading wheels, and center folding hinges for storage.

The litter includes two patient restraints and a non-aviation style vinyl heat-sealed mattress.

**⚠ WARNING**

**Improper use can cause injury. Use the litter only as described in this manual.**

**⚠ WARNING**

**Follow all safety precautions relevant to the aircraft type the litter is used with.**

2.2 General Specifications

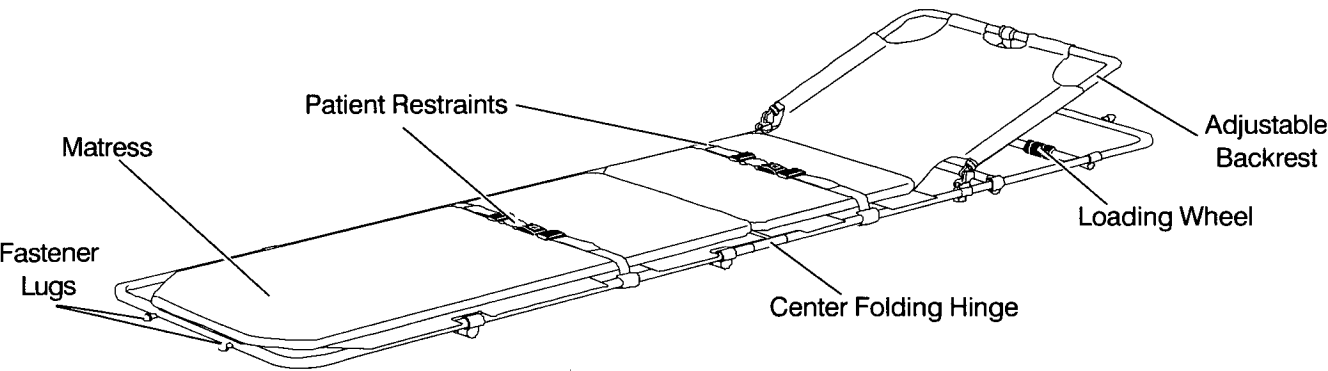
Specifications are rounded to whole numbers. For detailed specifications, contact Ferno Customer Service (page 10). Ferno reserves the right to change specifications without notice.

Height .....	3 in .....	8 cm
Length .....	73 in .....	185 cm
Width .....	18 in .....	46 cm
Weight .....	21 lb .....	10 kg
Load Limit .....	350 lb .....	159 kg

**Important**

The litter specifications are specific to the litter. Consult the aircraft flight manual for all aircraft weight and balance concerns.

2.3 Components



2.4 Patient Restraints

Keep both restraints fastened around the patient whenever the patient is on the litter.

To fasten a restraint, insert the tang into the receiver (Figure 1). Adjust the restraint by pulling the ends of the straps.

For more restraint information, see the restraint manual (supplied).

Installation and approval of installation by the FAA (or appropriate civil aircraft authority) is the responsibility of the customer.

Considerations should be made to ensure the litter's installation provides proper restraint of the patient and the litter within the aircraft. Further, the installation should assure patient safety according to the applicable FAA (or appropriate civil aircraft authority) regulations.

**Important**

This litter requires installation of a fastener device (not supplied) in the aircraft.

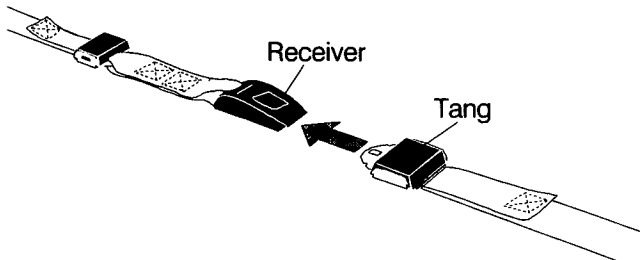


Figure 1

2.5 Adjustable Backrest

The backrest has a level position and eight raised positions.

To adjust the backrest from a level position to the first raised position, lift the backrest. The backrest support locks in the first raised position.

To adjust the backrest from any raised position to any other position, support the backrest frame with one hand, and squeeze the adjustment lever with the other hand (Figure 2).

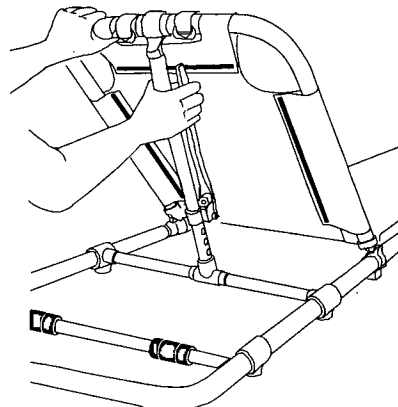


Figure 2

Move the backrest to its new position, and let go of the adjustment lever. Raise or lower the backrest until it locks into position.

2.6 Loading Wheels

Use the loading wheels to assist rolling the litter into and out of the aircraft (Figure 3).

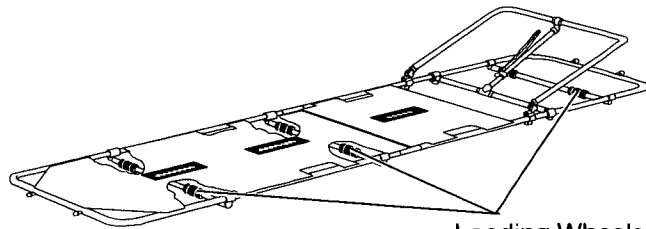


Figure 3

2.7 Center Folding Hinges

The center folding hinges allow the litter to be folded for storage (Figure 4).

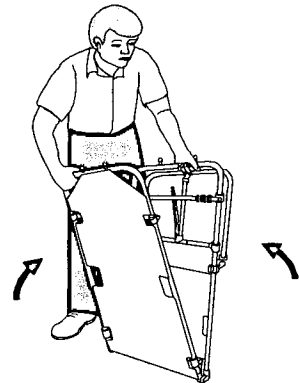


Figure 4

2.8 Fastener Lugs

The fastener lugs are hardened steel and can be used with an aircraft fastener to secure the litter in the aircraft. (Figure 5).

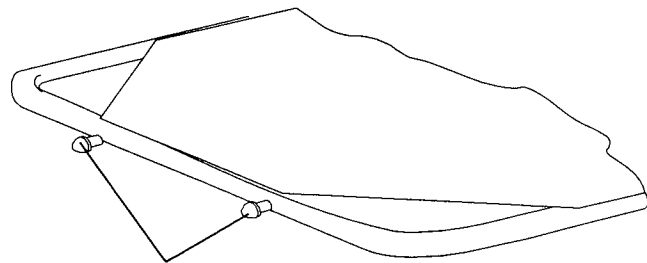


Figure 5

SECTION 3 - OPERATOR SKILLS AND TRAINING

3.1 Skills

- ☐ Operators should have a working knowledge of emergency patient-handling procedures.
- ☐ Operators should have the ability to assist the patient.
- ☐ Operators should have a complete understanding of the procedures described in this manual.

3.2 Training

- ☐ Trainees should follow a training program designed by your training officer.
- ☐ Trainees should read this manual.
- ☐ Practice with the litter before using it in regular service.

Test each trainee's understanding of the litter.  
Keep training records.

SECTION 4 - USING THE LITTER

4.1 General Information

Litter operation requires a minimum of four trained operators.

Read *Learning About the Litter* (page 4) before using the litter.

Follow standard emergency patient-handling procedures when using the litter.

Stay with the patient at all times and always use patient restraints.

Use good lifting techniques when lifting the litter. See *Operator Skills and Training* (above).

4.2 Using the Litter

Before placing a patient on the litter, stabilize the patient and apply any appropriate cervical or extrication collars for head and neck support.

While one operator holds the patient's head and neck in a neutral position, the other operators move the litter to the patient.

PLACING THE PATIENT ON THE LITTER

When the operators have access to both sides of the patient, apply the litter using the log roll method.

Roll the patient onto his/her side.

Slide the litter against the patient (Figure 6).

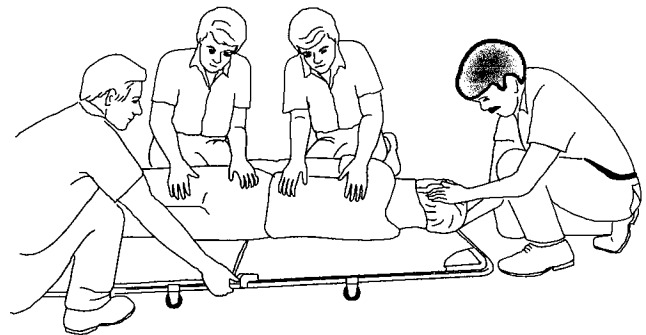


Figure 6

Roll the patient down onto the litter.

Secure the patient to the litter before moving the litter.

Important

If a spinal injury is suspected follow local EMS protocols concerning spinal injuries.

In cases where using the log roll method is undesirable, the four operators use the vertical lift method.

Move the litter to the patient.

While one operator supports the patient's head and neck the other operators lift the patient high enough to slide the litter under the patient's back.

Secure the patient to the litter before moving the litter.

4.3 Lifting, Moving and Loading the Litter

Once the patient is secured to the litter, lift the litter using proper lifting techniques.

With an operator supporting each side of the middle of the litter and an operator on each end of the litter, carry the litter to the aircraft.

Load the litter following the aircraft loading procedures appropriate for that particular aircraft.

Operators at the center of the litter support the center and do not allow it to flex or fold as it is loaded.

WARNING

Improper use can cause injury. Use the litter only as described in this manual.

4.4 Maintenance Schedule

The litter requires regular maintenance. Set up and follow a maintenance schedule.

Use the following maintenance schedule as a minimum.

	Each Use	As Needed	Each Month
Disinfecting	•		
Cleaning (Page 9)		•	
Inspecting (Page 9)			•

When using a maintenance product, follow the manufacturers' directions and read the manufacturers' material safety data sheet.

Contact *Customer Service* to order Ferno cleaners and disinfectants (page 10).

WARNING

Improper maintenance can cause injury. Maintain the litter only as described in this manual.

DISINFECT THE LITTER

Wipe all surfaces of the litter with disinfectant. Follow the disinfectant manufacturer's directions. As you wipe the litter down, check the litter for obvious damage and excessive wear.

CLEANING THE LITTER

Clean all surfaces of the litter with warm water and a mild detergent. Use a stiff-bristled brush if necessary. Rinse with warm water. Towel dry the litter or allow to air dry.

INSPECTING THE LITTER

Have your service technician or an EMSAR® service technician follow the instructions in *Using the Litter* and check the following:

- ☐ Are all components present?
- ☐ Does the litter backrest lock into each position?
- ☐ Does the litter load and unload properly?
- ☐ Are all screws, nuts, and roll pins securely in place?
- ☐ Do all moving parts move freely?
- ☐ Does the litter attach properly to the aircraft fastener?

If the inspection indicates a need to service the litter, contact Ferno *Customer Service* (page 10).

SECTION 5 - REPAIR PARTS AND SERVICE

For professional litter repair, contact EMSAR®.

EMSAR is the only agent authorized by Ferno to manage, service, and repair Ferno products.

EMSAR factory-trained technicians use Ferno-approved parts and repair procedures.

EMSAR has a franchise location serving you. Phone or fax for details.

To purchase authorized parts for your Ferno product, contact Ferno Aviation Inc.



800.73.EMSAR (Phone)  
937.383.1051 (Fax)

**FERNO**Aviation, INC.

404.256.1351 (Phone)  
404.256.2407 (Fax)

SECTION 6 - SUPPLIES AND ACCESSORIES

Ferno offers a full line of accessories approved for use with the litter.

Ferno also offers a full line of emergency products for the EMS professional.

Some of the accessories for the litter are:  
Model PR-20-20 Restraints  
Model SH-AB-01 Shoulder Restraints  
Model SP-12-2-02-01 Mattress Pad  
Model SC-12-2-02 Backrest Cover

**Important**

When using accessories with the litter, follow all of the instructions included with the accessories. Be aware of any special aircraft considerations (loading heights, door heights, etc.) when using those accessories.

SECTION 7 - LIMITED WARRANTY

Limited Warranty Summary

Ferno-Washington, Inc. (Ferno) warrants the products we manufacture to be free from defects in material and workmanship for one year except as follows:

- A) External finishes (gelcoat, decals, paint, etc.) are warranted for 90 days.
- B) Soft goods (webbing, vinyl, fabric, foam, etc.) are warranted for 90 days.
- C) Repairs and services are warranted for 90 days or until the end of the time period(s) above, whichever comes last.

This limited warranty applies when you use and care for the product properly. If the product is not used and cared for properly, the warranty is void. The warranty period begins the day the product is shipped from Ferno or the day you receive it if you have proof of the delivery date. Shipping charges are not covered by the limited warranty. We are not liable for shipping damages or damages sustained through using the product.

Limited Warranty Obligation

If a product or part is proven to be defective, Ferno will repair or replace it. At our option, we will refund the product's purchase price. The purchaser accepts these terms in lieu of all damages.

***This is a summary of the limited warranty. The actual terms and conditions of the limited warranty and the limitations of liability and disclaimers are available upon request by calling 800.733.3766 or 937.382.1451.***

SECTION 8 - CUSTOMER SERVICE

Customer service and product support are important aspects of each Ferno product.

For assistance with the litter contact Ferno Customer Service.

Ferno-Washington  
Attn: Ferno Customer Service  
70 Weil Way  
Wilmington, Ohio 45177-9371

Telephone ..... 800.73.FERNO  
937.382.1451  
Fax ..... 937.382.1191

